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To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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THAT DEEP WATER CANAL.

There was a meeting a few days ago at the office of the United States engineer in Philadelphia of the deep waterways board, which is to survey routes recommended for a ship canal connecting the Great Lakes with tidewater in the Hudson River, and make estimates of the cost of constructing the same. The board is composed of Major C. W. Raymond, United States Engineer at Philadelphia, who is president; Alfred Noble, of Chicago, and George Y. Wisner, of Detroit. The headquarters are in Detroit, but the meetings are held at the points most convenient to members of the board. Several surveying parties are already in the field. One party, under the leadership of C. L. Harrison, is at work on the line of the proposed Niagara Falls ship canal. The members of the board have been over the proposed line of this canal twice, and have made a careful examination of the ground. Another party, under Engineer Haskell, is at work near the International Bridge, above Buffalo, determining the discharge of the Niagara River. Two other surveying parties are being organized, and will take the field in a few days, going over the proposed route from Oswego, through Oneida Lake and the Mohawk valley, to the Hudson River. One of these parties will be under Engineer Himes, and the other under D. W. Howell. Mr. Howell's party will start at the mouth of the Mohawk valley and work westward.

MORE GOVERNMENT WORK.

A special from Sault Ste. Marie says: "Another good-sized government contract is soon to be let which local contractors are asked to bid on. The specifications call for the removal of about 18,000 yards of refuse left from the stone cuttings done by Hughes Bros. & Bangs on the land between Water street and the governmet pier, the grading of the grounds, levelling off and filling in the sloping banks, making driveways, and in fact fitting it up for park purposes for which the property is intended. The outlay required to do the work will be between $8,000 and $10,000 and it will be commenced at once and completed this fall. With the work already contracted for by the government and private individuals, to be completed this fall and winter, it would appear that the outlook for the wind-up of the season is fully as good as in any previous year.

VESSELS CLASSED.

The American Shipmasters' Association have classed this week in the "Record of American and Foreign Shipping," barkentine Abiel Abbot, three-masted schooners, Chas. H. Valentine, Helena, Martha S. Bement and Willie L. Newton; ships, Charmer, Henry Willard and William H. Macy; barges, Clintonia and Oak Hill, and bark Mary C. Hale.

DEEP SEA SOUNDINGS.

The deepest spots so far sounded in the ocean, were found a year or two ago by the surveying ship Penguin, while returning from the Tonga group to New Zealand. In three places a depth exceeding five thousand fathoms was found. Till these soundigs were made, the deepest water found was to the northeast of Japan, where, in 1874, the United States steamer Tuscarora obtained a cast of 4,655 fathoms.

The Penguin's soundings are 5,022, 5,147 and 5,155 fathoms. The increase is therefore 500 fathoms, or 3,000 feet.

These soundings are separated from one another by water much less deep. The distance from the two extreme soundings is 450 miles. Specimens of the bottom were recovered from the two deeper soundings and prove to be the usual red clay found in all the deepest parts of the ocean.

These soundings afford additional evidence of the observed fact that the deepest soundings are not in the centers of the oceans, but are near land, as two of them are within one hundred miles of islands of the Kermandec group, and the other not far from a shoal.

Doubtless deeper depressions in the bed of the sea are yet to be found, but the fact, that this sounding of 30,930 feet shows that the ocean contains depressions below the surface greater than the elevation of the highest known mountains is worthy of record.

THE BAZIN ROLLER BOAT A FAILURE.

The Bazin roller boat, which it was promised would do such wonderful things in the way of speed, has now been put through its trials, and, as is now generally known, has been found wanting, is a lamentable failure, and furnishes yet another instance of the enthusiasm of an inventor seeking to override the ascertained possibilities of mechanical effort. Instead of a speed of twenty knots, as anticipated, only eight knots has been attained, and this notwithstanding that the power exerted was very considerably in excess of that anticipated in the original designing of the engines. M. Bazin, in addition to having to suffer the agonies of defeat and to put up with the jeers and taunts of many of his countrymen, has now also to meet the charge of plagiarism, several French contemporaries having pointed out that his scheme was anticipated, although there were slight differences in actual design of the "rollers" and the method of propelling them.

NOTICE TO MARINERS.

United States of America—Northern Lakes and Rivers—Michigan.

Treasury Department,
Office of the Light House Board,
Washington, D. C., October 11, 1897.

LAKE ST. CLAIR—LAKE HURON.

Lake St. Clair Gas Buoy.—Notice is hereby given that, on September 28, 1897, a gas buoy, painted black and showing a flashing white light every 10 seconds, was established, in 20 feet of water, on the northwesterly side of the lower entrance to the Lake St. Clair Twenty-Foot Dredged Channel. The buoy replaces the former Lake St. Clair Buoy, No. 1, a black spar, without change in location, and marks the turn from the head of the Detroit River into the Lake St. Clair Twenty-Foot Dredged Channel.

Corrected bearings are:

Outer end of Fishers Dock, N. 3-4 E.;

Windmill Point Light House, WSW, 5-16 W.

Detour Reef Gas Buoy.—Notice is hereby given that, on September 29, 1897, a gas buoy, painted black and showing a flashing white light every 10 seconds, was established, in 19 feet of water, about 3-4 mile SE. by E. 1-8 E. from Detour Light House, northerly part of Lake Huron, and off the westerly side of the entrance to the St. Marys River. This buoy replaces the former Detour Reef Buoy, a black second-class can, without change in location.

Bearings are true; miles are statute miles.

By order of the Light House Board:

W. S. SCHLEY,
Captain, U. S. Navy, Chairman.

PREMIUMS TO NAVAL SHIPBUILDERS.

Some interesting statistics have recently been made in connection with the premium system in the United States shipbuilding yards, which has involved the payment of over three and a quarter million dollars. Secretary of the Navy Whitney first instituted the system that awards for H. P. at the rate of $100 per unit in excess of the contract requirements. Under the system the Yorktown earned $39,825, the Newark $36,957, the Concord $453, the Bennington $3,609, and the Baltimore $106,442. In all cases there was a penalty of $100 per unit for any shortage in H. P. and under, the Charleston lost $33,823, the Monteroy 32,823, and the Petrel $485. Soon, however, it was determined to give premiums for speed, irrespective of H. P., and under this plan the Wilmington earned $41,500, the Bancroft and the Machias $45,000 each, the Nashville $45,980, the Helena $49,940, the Castine and the Indiana $50,000 each, the Philadelphia, San Francisco and Massachusetts $100,000 each, the Marblehead $125,000, the Detroit $150,000, the Oregon $175,000, the New York and Monteroy $200,000 each, the Iowa $217,420, the Olympia $300,000, the Columbia and Brooklyn $350,000 each, while the Minneapolis broke all records with $414,600. That well-known shipbuilding firm, Cramps, of Philadelphia, in all their contracts never lost a dollar for penalties either in speed or H. P., but earned the great extra sum of $1,865,144. A reaction set in after the tremendous sum above-mentioned was won in this way by the Minneapolis, and if the system should be revived it would be on a much smaller scale, but the opinion at present is that no premiums are needed to make American contractors put in their very best work.

Messrs. Burger & Burger of Manitowoc have been awarded the contract by the Goodrich Transportation Company to lengthen the steamer Ludington and build a new cabin on her. The work is to be done during the coming winter and will cost about $25,000.

NEWS AROUND THE LAKES.

CHICAGO.

Special Correspondence to the Marine Record.

The Chicago Shipbuilding Company have the steamer Hesper in their drydock having her bottom calked.

The Independent Tug Line have the tug George B. McClellan on their floating drydock receiving a thorough overhauling.

The steamer Mary Mills is in dry dock for calking all over, the schoner Ann Maria for bottom searching and calking butts and garboards, the tug O. B. Green is in for calking and re-ironing.

The passenger and freight steamer Saugatuck, Capt. John Campbell, made her last trip for the season between Muskegon and Saugatuck before she goes into winter quarters. The steamer Bon Ami, Capt. Wm. Turnbull, of the same line, will complete the season aloe between Saugatuck and Chicago.

The Goodrich Transportation Co. have given a contract to the Detroit Dry Dock Engine Works to build a fore and aft compound engine 21 and 44 by 36 inches stroke for the company's steamer City of Ludington, which will be put into her at Manitowoc after she has been lengthened at Burger and Burger's shipyard.

J. J. Rardon & Co. chartered the steamer R. P. Ranney for wheat to Fairport at 1 7-8 cents; steamer M. B. Grover and consort John Martin; steamers Abysinnia, Hesper, H. Chisholm, City of Cleveland for corn to Buffalo at 1 3-4 cents; steamer Bulgaria for clipped oats to Fairport at 1 1-2 cents; steamer Amazon, corn to Erie at 1 3-4 cents; barge Sacramento for wheat to Buffalo at 1 7-8 cents; steamer Saginaw Valley, oats to Black Rock at 1 3-4.

H. W. Cook & Co. chartered a schooner for lumber, Marquette to Chicago, at $1.12 1-2; steamers Fred Kelly and Santa Maria and barges Teutonia and Thos. Gawn for lumber, Ashland to Chicago at $2.00; schooner Iver Lawson for lumber, Garth to Chicago, at $1.12 1-2; schooner Surprise for lumber, Frankfort to Chicago, at $1.25; steamer Aztec and consort Zapotec for lumber, Baraga to Chicago, at $1.62 1-2; steamer Westover and consorts Bliss and Parana for lumber, Manistique to Chicago at $1.25.

Extra work at life saving stations is a sure sign of the approach of winter. Capt. Frank Fountain of the Chicago Life Saving Station and his crew went to the assistance of the schooner Annie Thorne, laden with slabs for this port at 11:30 p. m. of Oct. 5th. The schooner carried away her main boom and some of her gear when oft Lincoln Park, which rendered her mainsail useless, her anchor was dropped and the life saving crew stayed by her until a tug came to her assistance, when they assisted in heaving up her anchor and she was towed into port.

Last Sunday night the schooner Surprise, when going out of port light got into trouble in consequence of the tug which towed her out not taking her far enough into Lake Michigan. What little wind there was, was from the eastward and the schooner drifted back on to near the east end of the government breakwater and carried away her bob stay and some other head gear. Capt. Fountain and the life saving crew went to her assistance and remained by her until a tug came alongside and towed her back into port.

Capt. M. Fitzgerald of the steamer Majestic wishes through the columns of the Marine Record to record his thanks and give special praise to the captain and crew of the North Manitou Island Life Saving Station. He says they came off promptly to the assistance of the steamer on Oct. 2nd., when she grounded on N. Manitou Island, and did excellent work in lightening and assisting in every way. He also says that Capt. Andres is a perfect gentleman and worthy of his position and that his crew are all fine, able-bodied men and as good as any there is on fresh water.

Mr. H. W. Thorp, formerly auditor, has been appointed general manager of the Goodrich Transportation Co., and will assume duties of the said position November 1st. Mr. Thorp, although quite a young man, has been raised to his present position entirely through steady perseverance and strict attention to the business of the company in whose employ he has spent 15 years. He commenced his services as clerk and cashier for the company at Manistee, where he remained 5 years; he then took the position of purser on the company's steamers which he held for 4 years, when he was promoted to the position of secretary and afterwards auditor of the company, which positions he has held for the past 5 years. Mr. Thorpe is held in high esteem by all members and employes of the Goodrich Company, whose good wishes for his future prosperity are general.

BUFFALO.

Special Correspondence to the Marine Record.

The new Cleveland and Buffalo Line boat is now a sure thing and we hope to see her on the route early next season.

Brisk chartering in coal has been done this week, Lake Michigan rates going up to 40 cents and Lake Superior 25 cents; Portage 30 cents and Racine 45 cents.

The 90-foot steel tug built at David Bell's yard for L. P. & J. A. Smith of Cleveland, will be launched as soon as it can be got over the Coit Slip. The filling up of the canal slip on the further side of Erie street, which was always used for these launches makes a long haul necessary before the tug can reach the water; however she will be in the water this week.

Handling the large steamer Empire City out of the Coatsworth Slip this week required three tugs and then with the wind and current she walked away with them, and brought up against the dock, doing slight damage to her stern, whereby one plate had to be renewed.

Capt. Clint Ennes, now in the Menominee Line steamer German, remarked this week that the German was the fourth boat for him to have had charge of this season. It seems a little strange to me that the Capt. should be credited with this remark, as it has not always been thought any way agreeable to make too many changes in one year.

There is still a big force of men at work on the Great Northern Elevator, though it is very nearly finished, and has been in operation more than a week. A long line of iron shedding is going up on the street side of the elevator, its full length, for the purpose of sheltering the double line of cars that are to load there. Loading spouts come down from the upper half of the elevator, and pass through the roof of the shed. Just inside the building is trackage for another line of cars.

The receipts of flour and grain by lake are still large, though the increase of wheat has not equaled the falling off of corn and oats. Four is on the increase, being 417,000 packages; wheat 2,597,000 bushels; corn 919,000 bushels; oats 1,523,000 bushels; barley 367,000 bushels; rye 102,000 bushels; flaxseed 103,000 bushels; a total of all grain and flaxseed of 5,612,000 bushels. It appears that the shipments of grain by rail and canal for last week are considerably more than the receipts, in fact the roads alone have taken out more than has come in, so that with the exception of individual elevators or roads there is a very material improvement in the condition of the elevators.

The contract for the new Cleveland and Buffalo Line passenger steamer has been closed with the Detroit Dry Dock Company. The cost of the boat will be considerably greater than that of the City of Buffalo, built by the same company a year ago last winter. She is to be 325 feet in length, 79 feet beam, and 18 1-2 feet molded depth. The engines will be built by the Fletcher company of Hoboken, N. J. They will be of the same size as the Buffalo's engine, but she will have more boiler power than that boat. The indicated horse power of the latter's engine is between 5,000 and 6,000. The Dry Dock Company guarantees that the new boat will equal the speed of the Buffalo, which now holds the record for the lakes, and she may even exceed it. It is estimated that the new steamer will have sleeping accommodations for 700 people. She will have a steerage cabin forward beneath the main deck, and plenty of staterooms for the people who prefer to travel that way.

CLEVELAND.

Special Correspondence to the Marine Record.

Mr. John C. Fitzpatrick of Buffalo visited this port on Tuesday and called on his marine friends.

Mr. Frank Manton, agent for the "Providence" steam windlasses and capstans spent Monday in Cleveland.

The J. H. Devereux is at the Ship Owners' Dry Dock and will receive twelve new plates, new frames, etc. This is another case of bottom damage.

The steel steamer Alva, Chicago to Escanaba, light, ran on Pilot Island. After pumping out the water ballast she was released by the tug Monarch.

Every effort has been made by the brokers this week to improve coal freights. The figures asked for tonnage has been 40 cents to Milwaukee and 30 cents to the head of the lakes.

The steam steerers illustrated in this issue of the Record are manufactured, or built, by the firm of Pawling and Harnischfeger, Milwaukee, Wis., whose advertisement appears on page 13.

Capt. Fred Ray, late master of the R. E. Schuck in the Gilchrist employ, has resigned his situation and joined the steamer Thomas Wilson, managed in the office of Pickands, Mather & Co.

Acting Secretary of the Treasury Spaulding has reduced the $200 fine imposed on the steamer Globe, Capt. A. B. Davis, to $15. This was for violation of the rules regarding navigation of St. Mary's River.

The steamer Alva is in the Cleveland dry dock having repairs made to extensive bottom damage after being ashore on Pilot Island. No less than thirty-eight plates will have to come off and with new frames, etc., the job is quite a large one.

Some unfounded charges were recently lodged against Capt. Motley, keeper of the life saving station. After an official investigation Capt. Motley was not only exonerated from all blame, but the department further recognizes the importance of this station by adding two more men to the crew, thus making it the best manned station in the service. All who are acquainted with the work carried on at this port knew that the result of the inquiry could not end otherwise than it has done.

Mr. Robert Curr left this week for West Superior to superintend the construction for the owners of the large schooner to be built at the yards of the American Steel Barge Co. for Pickands, Mather & Co. The general dimensions of the schooner will be 390 feet over all, 376 feet keel, 46 feet beam, 26 feet depth of hold, with a 54 inch water bottom. The vessel is to be equipped with all the latest improvements for handling vessel and cargoes. The American Steel Barge Co. will also lay the keel of a 412 foot steamer, 50 feet beam, 27 feet depth of hold, with a five feet water bottom. This steamer will have a straight stem and roomy top gallant forecastle, otherwise after the whaleback model.

There has been considerable detention of grain loaded vessels at Fairport recently, the lake terminus of the Baltimore & Ohio railroad. On account of shipping large quantities or grain unsold, it has come to be the cuctom at Chicago of giving the option of Buffalo, Erie, or Fairport. This went well enough until one day the Baltimore & Ohio stepped in, and took 2,000,000 bushels of grain. Vesselmen, whose boats had been chartered with the Fairport option, were badly caught. Three times the amount of grain has gone into Fairport that the facilities there would handle. Boats have been held up waiting their turn to unload.

The dimensions and carrying capacity of the three boats to be built by F. W. Wheeler & Co. for the Rockefeller fleet are as follows:

	Dimensions.	Tons.
Steel steamer	475-455-50-29	6,500
Steel barge	450-435-50-28 1-2	7,000
Steel barge	450-435-50-28 1-2	7,000

The first movement of machinery at the new plant of the Cleveland Shipbuilding Company at Lorain took place on Wednesday, when steam was turned into the engine at the power house. The dynamo furnishing power for the electric traveling cranes was run by the engine, and the cranes were put in operation. Everything worked in a satisfactory manner. The keel blocks for the big Wolvin steamer are nearly in position, and Superintendent Bristow is of the opinion that the keel for the steamer will be laid the forepart of next week.

DETROIT.

Special Correspondence to the Marine Record.

The collector of customs at this port has received instructions from Washington to remit all but $15 of the $200 fine against the steamer Globe.

Commander Kennedy, U. S. N., has been ordered to duty as inspector of the eleventh lighthouse district at this port upon the detachment of Commander Folger, U. S. N.

The steamer Gov. Smith reported on Tuesday that the gas buoy on the middle ground opposite Black River had been carried away and was at Stag Island. The lighthouse service will have it promptly replaced.

The Drydock Engine Works has closed a contract with the Goodrich Transportation Co., Chicago, for a compound engine with cylinders 21 and 44 by 36 inches, having steam reversing gear, etc., for the steamer City of Ludington.

A large number of shipyard workers are leaving Bay City for West Superior to work in the yards of the American Steel Barge Co., which will be a very busy spot this winter. Quite a number of the workmen have shipped at this port for the passage up.

Much credit is being given to the master and officers of the steamer Nebraska for their plucky rescue of the crew of the foundered steamer E. B. Hale and their attempts to tow that craft head to wind until repairs could be effected.

Capt. William E. Comer, now master of the steamer State of Michigan, has forty-five years of active service to his credit, as he commenced sailing in 1852 and had charge since 1866, over thirty years' successful work as master is a great and good record for any man to hold, and there is lots of vivtality left there yet.

The steamer Northern Light was seized in the river Wednesday by a sheriff and deputies on board the tug Home Rule, by order of a high court to satisfy a judgment in favor of Capt. F. B. Hackett against the Northern Steamship Co. This is the result of long litigation in the Canadian courts over the sunken schooner Fayette Brown. Bonds are being got out and the steamer will not be detained for only as brief a time as possible.

FLOTSAM, JETSAM AND LAGAN.

The U. S. S. Michigan has gone into winter quarters at Erie, Pa.

Capt. James Davidson has laid the keel of another wooden schooner 305 feet in length.

The steamer S. R. Kirby, which went ashore at Erie Thursday, was released without damage.

Capt. Robert Smith of the whaleback steamer Christopher Columbus threatens to sue the Milwaukee inspectors for suspending his license on account of a slight collision.

Lake shipbuilders are taking every means in their power to get the best kind of metal into their ships now under construction. Inspectors are appointed to test the steel and to approve or condemn each batch of material before being sent to the shipyards.

The Chicago grain rate has held without a break or a change for nearly a month at 1 3-4 cents on corn to Buffalo, thus establishing a record for a steady market. Occasionally the wheat rate has been moved up an eighth of a cent, but only for a few days at a time. The demand for boats is now about equal to the supply, and the market shows a healthy condition.

The tug Englesby has been rebuilt at Lorain by H. D. Root for the E. R. Edson Fish company, of Cleveland. She is about 80 feet long and will be used by the company in their fishing business. The Edson tug W. G. Harrow towed the Englesby to Cleveland, where she will receive her boiler and engine.

A SUCCESSFUL DIVING BELL.

Considerable interest is manifested in the success this year of the Smith diving bell, at work this summer on the hull and cargo of the sunken passenger steamer Pewabic. On the 9th of August, 1865, the steamer was sunk through collision off Alpena, Mich., with considerable loss of life and a valuable cargo.

Several expeditions have been fitted out during the past thirty-two years to find the hull and recover the copper which the vessel carried as part cargo, but every attempt made proved unsuccessful, some of the divers losing their lives in the attempt.

Mr. Smith, secretary of the American Wreckage and Salvage Co., perfected a diving bell which it is stated can work to advantage in thirty fathoms of water.

The diving bell is a cylinder about eight feet high and has a diameter of nearly six feet. Five windows are placed at different heights about the bell, and from these the arms are operated. By means of these arms worked from the inside of the bell the divers are enabled to handle immense weights or pick up an article as small as a teaspoon. For the purpose of raising the cargo of the Pewabic, all sorts of tongs, rakes, drags, hooks and other implements were attached to the arms and used to search every nook and cranny of the sunken vessel. The debris was cleared away from the lumps of copper, then ropes and tackle were fastened securely about them, and the crane and hoisting engine put in motion and they were raised.

Telephone and electric lights, air tubes for pumping in fresh air and exhausting bad air, make the bell habitable. It is constructed of inch-thick steel plates and is necessarily of great strength to resist the immense pressure of the water at great depths. It is estimated that at 165 feet under water, which is the depth where the wreck of the Pewabic lies, the pressure is about eighty pounds to the square inch. The arms referred to are of one inch square rolled steel, and when thrust out of the bell the pressure is sufficient to spring the rod considerably and require a good deal of force to push it out.

THE DAVIDSON SHIPYARD.

Although Capt. James Davidson is one of the oldest and most sucessful shipbuilders on the lakes, he still keeps to the exclusive construction of wooden vessels. At the West Bay City yards of Davidson & Son a keel for a wooden schooner has been laid this week. Her general dimensions are to be 315 feet over all, 300 feet keel, 44 feet beam and 26 feet depth of hold. The schooner will be built of the best quality of material obtainable and will be given a high rating in one of the cassification societies. She will have three masts and be equipped with a compelte sailing outfit. Steam windlasses, donkey engines and steam deck hoisting apparatus are called for in the specifications. The boat will be supplied with all the latest labor saving appliances and be fitted for the general trade.

A large force of men will be employed and it is expected to have the boat ready for the opening of navigation in the spring. With the new schooner three big wooden boats will be in course of construction, the other two being steamers.

In addition to the new work a large amount of repair work is being done at the yard. The barges Tysoon and Mikado are being remodeled into car ferries and will soon be ready to leave for Detroit. The work of transforming the White and Friant from a steamer to a barge has also been completed this week.

FOR THE ATLANTIC SERVICE.

The new White Star Line steamer Cymric was launched this week from the yards of Harland & Wolff, Belfast, Ireland. The Cymric is a freight and passenger steamer of 12,000 tons, considerably longer than the Georgic, which is the largest of the White Star Line freight steamers now in the trans-Atlantic service.

The White Star Line is understood to have contracted for over 100,000 tons of new steamer property. In addition to the Cymric the Oceanic is approaching completion. The latter was to have been launched in January next, but owing to the continuance of the strike in the engineering trade of Great Britain, it is probable that she will not be launched until May or June next. The Oceanic will outrank all other trans-Atlantic steamships in size. She will be 704 feet in length, or 25 feet longer than the Great Eastern, the largest passenger steamer ever floated. The Kaiser Wilhelm der Grosse is 649.62 feet long, the St. Louis and the St. Paul are 554.63 feet in length and the big Hamburg-American freight steamer Pennsylvania is 585 feet over all. The Oceanic is to be named after the pioneer steamer of the White Star Line.

SAULT STE. MARIE CANALS.

Report of freight and passenger traffic to and from Lake Superior for the month of September, 1897, including statistics of the United States and Canadian Canals at Sault Ste. Marie, Mich., and Ontario.

EAST BOUND.

ITEMS.	DESIGNATION.	U. S. Canal.	Canadian Canal.	Total.
Copper	Net Tons	12,543	1,233	13,776
Grain	Bushels	1,502,352	103,600	1,605,952
Building Stone	Net Tons	1,747	.....	1,747
Flour	Barrels	1,000,558	192,420	1,192,978
Iron Ore	Net Tons	1,289,865	610,568	1,900,433
Iron, Pig	Net Tons	1,173	.....	1,173
Lumber	M. Ft. B. M.	111,506	.....	111,506
Silver Ore	Net Tons	.....	.....	.....
Wheat	Bushels	4,582,067	3,561,693	8,143,760
Unclassed Freight	Net Tons	16,946	3,934	20,880
Passengers	Number	1,963	1,000	2,963

WEST BOUND.

ITEMS.	DESIGNATION.	U. S. Canal.	Canadian Canal.	Total.
Coal (Hard)	Net Tons	59,488	6,500	65,988
Coal (Soft)	Net Tons	124,758	5,437	230,195
Flour	Barrels	.....	.....	.....
Grain	Bushels	.....	.....	.....
Manufacruted Iron	Net Tons	12,912	1,108	14,020
Salt	Barrels	26,811	300	27,111
Unclassed Freight	Net Tons	35,722	3,369	39,091
Passengers	Number	1,760	1,290	3,050

East Bound Freight, net tons	2,529,077
West Bound Freight, net tons	255,102
Total	2,784,179
Craft—United States	1,961
Canadian	661
Total	2,622
Registered Tonnage—United States	2,211,833
Canadian	607,121
Total	2,818,954

To move 13,589,183 tons of freight to and from Lake Superior during the season up to October 1, 13,256 vessels passed through the "Soo" locks, 1,894 less than were required to carry 12,793,341 tons through the same passage during a similar period in 1896. Last season's record up to October 1 was 15,150 vessels for 795,842 tons of freight less than has been moved this year. To make it more clear the freight movement to and from Lake Superior to October 1 was over three quarters of a million in excess of last year's shipments, but the number of round trips made this year has been 947 below the number of trips made last season for the months being considered.

NOTICE TO MASTERS OF VESSELS.

Sault Ste. Marie, Mich., October 13, 1897.

Changes in Location of Float-Light and Buoys, Middle Neebish.

The Middle Float-Light (No. 3) on the south side of the deep cut through the Middle Neebish, the black spar-buoy next below the light, and the black spar-buoy next above the light have been moved northward to a line about 90 feet north of, and parallel to, the South or Neebish Island side of the cut. In this position they mark the outer edge of a rocky coaming, or ridge, that results from the work of rock excavation now being carried on there for the purpose of deepening the channel. The upper and lower ends of this coaming will be marked by anchored scows (in line with the float-light and buoys) on which conspicuous white lights will be shown at night. The clear width of channel left to the northward of these buoys and lights is about 210 feet, but no vessel should attempt a passage to the southward of them.

Reasonable regard for safe navigation through this narrowed section of the channel, with its rocky sides and rapid current, requires that vessels should not meet and pass each other there; and in order to prevent it up-bound vessels should stop and remain in the wide channel-way below while any down-bound craft is approaching or passing the narrow section. G. J. LYDECKER,

Lt. Colonel, Corps of Engineers, U. S. A.

NAXIM ON SCREW PROPELLERS FOR AIR-SHIPS.

Mr. Maxim says that a great English marine engineer, in lecturing on the screw propeller, stated that recent experiments had shown that a piece of common boiler plate riveted to the hub of a propeller was only five per cent. more wasteful in power than the most perfect screw that could be made. Mr. Maxim thinks that if this same engineer had made his experiments with screws running in the air, he would have found a much greater difference. "The first screws that I experimented with," writes Mr. Maxim, "were about eighteen inches in diameter and were attached to an apparatus by which the screw shaft could be moved to a longitudinal direction, its travel forward being opposed by suitable springs. Experiments went to prove that the screws, when started suddenly in still air, produced a thrust of twenty-one pounds, but when the current of air had become established, the screw would then be running in the rapidly moving current, and the thrust would only amount to fourteen pounds, the speed in both cases being the same. The screw propellers employed in these experiments were made of light American pine, with a great degree of accuracy, coated with very hard glue, dried, varnished with shellac, and painted so as to keep their form. Since that time I have found that a well made screw is an excellent dynamometer for testing an engine, and that it works very efficiently in the atmosphere.

"I will mention another interesting point which will be useful to experimenters, viz: suppose that a small screw propeller is making 2,000 turns a minute, and we will say produces a thrust of twenty pounds without moving forward. Suppose that in moving forward it still maintains the same number of revolutions per minute. Of course, as the velocity increases, the slip of the screw diminishes, but it is a curious fact that up to fifty or sixty miles an hour the actual thrust remains almost constant. What is lost in thrust by diminished slip in the air, seems to be exactly compensated for by the advantages of running into new air, the inertia of which has not been disturbed." In regard to future experiments that he may make with flying machines, Mr. Maxim says that he cannot say how much time he may have to devote to it, as the gun business is getting pretty lively over in Europe and keeps him about as busy as he wants to be. These little facts that he has observed are at the service of any would-be inventor

Mr. Pilcher, who has charge of Mr. Maxim's experimental department, details some interesting experiments he has made with a flying machine built on the Lilienthat plan, which he was able to guide very well. A unique feature of this machine was the attachment of wheels by which, when it wouldn't go in the air, it was able to go on land. He says that they are building a new machine which will have an oil engine to drive the screw propeller, and he hopes that it will exert enough power to overcome the losses arising from friction and slip, and keep the machine floating horizontally. He thinks that about 170 square feet is the best area for a machine of this class for a man of average weight. If it is larger it is difficult to handle, and with a smaller machine the sailing speed would be unpleasantly great and difficult to control. In conclusion he hopes to have something much more important to communicate to the next "Annual."

An addenda to the book contains much valuable miscellany. One paper by Prof. C. H. Peabody, of the Massachusetts Institute of Technology, is especially valuable. He discusses the problem of the use of liquid carbonic acid or compressed air for a motive power for airships. There is also given the results of the aerial explorations of the Blue Hill observatory; methods of launching aerial machines, diagrams of the contour of the albatros, and plates of birds' wings. If there were no other evidence of the importance which this subject of mechanical flight is rapidly attaining than this "Annual," there would be sufficient in it to convince the most skeptical that the best thought of leading men of science and practical inventors is now being turned to the solution of the problem.

"The Aeronautical Annual." 1897. Edited by James Means. W. B. Clarke & Co., Boston. Price, $1.00.

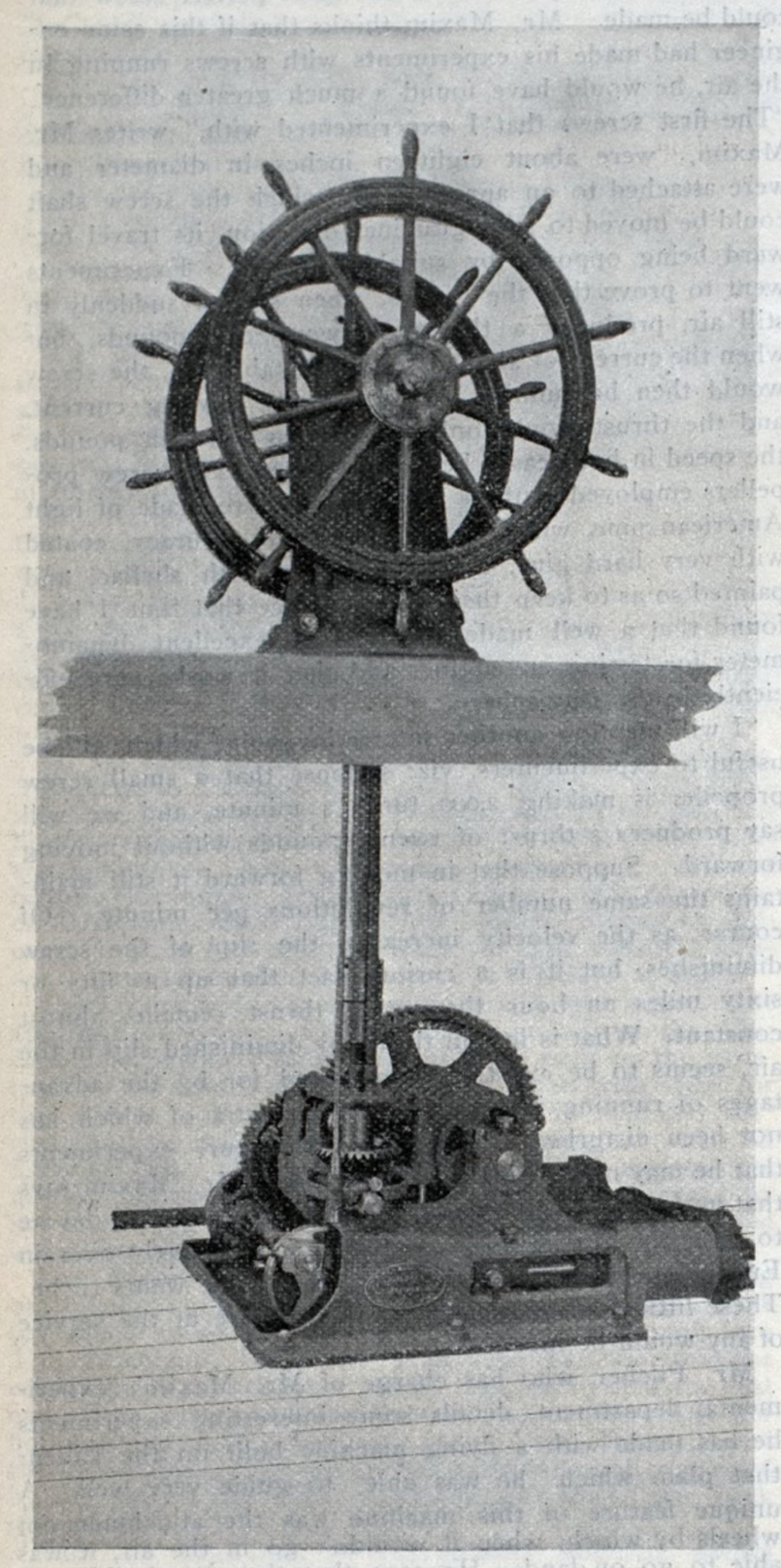
The general offices of the Metropolitan Iron & Land Co. will likely be removed to Pittsburg about February 1. The annual election of officers will take place in January, at which time, it is expected, there will be a change, the present officers retiring to make way for men connected with the Carnegie company's recent purchase of the Norrie mines. It is said that the present officers, or some of them, could remain with the company and retain their official positions, providing they were willing to remove to Pittsburg, where the headquarters will be established.

BECK PATENT No. 8 STEERING GEAR.

PAWLING & HARNISCHFEGER, MILWAUKEE.

Lower Deck Pattern.

This gear is intended for vessels of about 4,000 tons capacity, where the pull on the quadrant need not exceed 15 to 20 tons. The machine is very compact, considering



NO. 8 HORIZONTAL GEAR.
Suitable for below deck.

the power it has, and is arranged so that one motion of a single lever will change it for steam or hand steering without the wheelsman leaving his position. It is not necessary to turn on or off the steam when making the change, nor is it necessary that the gear should be in some particular position. The change can be made in any position and the steam will be turned on or off automatically; the clutches likewise engaging without any attention on the part of the wheelsman. So far as we are aware, these features have never before been embodied in any steering gear and we think their value will be appreciated by those who know the importance of being able to shift instantly in case of an emergency.

The engine-cylinders, frames and bed plate are cast in one piece and so arranged that all small parts are protected from external injury and dirt, but are, nevertheless, readily accessible for oiling and adjustment. The bed is flanged and serves as a pan to catch all waste oil and drainage, which can be piped off to any convenient point. The engine parts are constructed in a thoroughly first-class manner and from the very best of material. The gears are extremely few in number (a matter which will be properly appreciated) and these are made from semi-steel, with teeth cut from solid metal, and fitted with pinions cut from solid steel forged blanks.

The controller for operating the steam valve is of simple and novel construction and runs in a close case partly filled with oil to ensure constant lubrication and freedom from wear and tear. The slightest motion secures a liberal travel of the controlling valve, and causes the engine to respond instantly to the least movement of the hand wheel. As the machines are spur geared, and not worm geared, any overstrain on the rudder will cause the engines to open steam against the pistons to cushion the blow and greatly ease the strain which might prove dangerous with a more rigid type of gear.

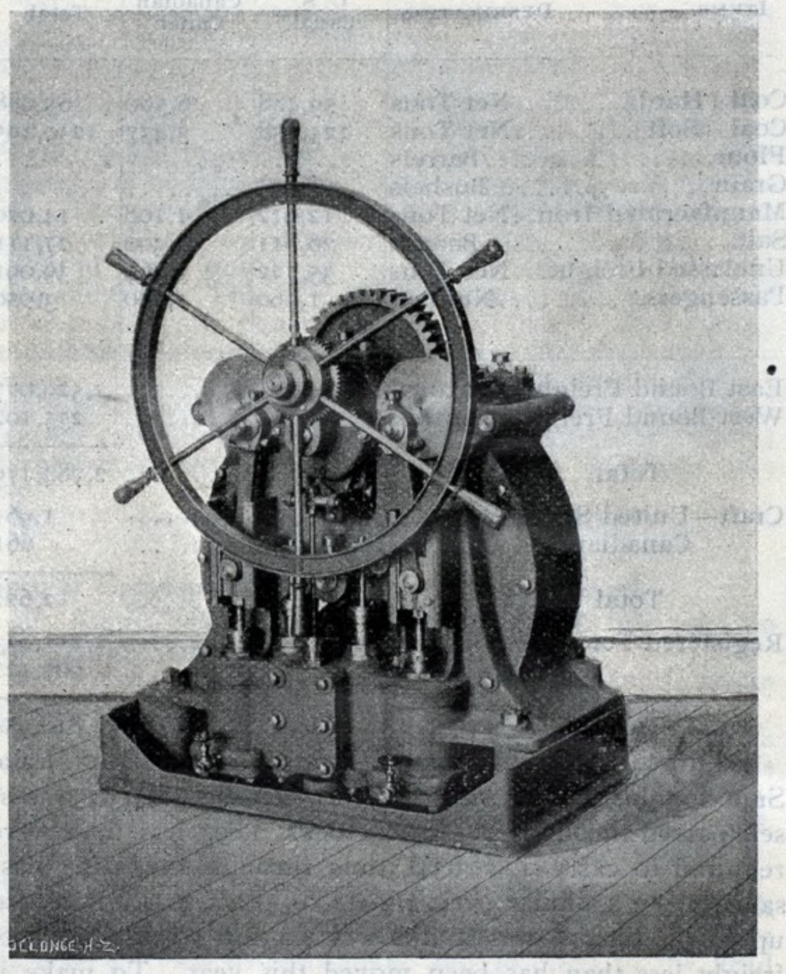
Each gear is provided with a wheel-stand of substantial design which is fitted with two 5-foot hand-wheels strongly and carefully made of the best materials. As will be seen by reference to the illustration, the lever for shifting the gear from steam to hand or back again, is placed directly on the stand so as to be within convenient reach of the wheelsman. The indicator for showing the position of the rudder is also placed on this stand, and is fitted with a bell to indicate hard-over positions.

BECK PATENT NO. 5 STEERING GEAR.

The gear shown in the other illustration (Fig. 2) was designed with special reference to being placed in the wheel-house of tugs and barges were, on account of the room being very limited, the machine must be compact.

Gears of this pattern are built in two sizes, Nos. 4 and 5, and are proportioned for an effective pull of 3 tons and 6 tons, respectively, when using a single part of chain, or about double this when two-part chains are used at the quadrant.

Both sizes can be quickly changed from steam to hand steering without letting go the hand wheel and without



PILOT HOUSE GEAR NOS. 4 AND 5.

the use of a wrench or key of any kind. The change can be made at any time, in any position, and without stopping to turn on or off the steam. The controller, as in the larger machines, runs in oil to secure thorough lubrication and freedom from wear and play, and, when steering by hand, it is automatically disconnected and dropped out of use. An indicator shows the position of the rudder at all times and is fitted with bells to indicate when the hard-over positions are reached, as in the larger machine.

The gear is proportioned to secure an even action without sacrifice of the speed or power which is so important to meet an emergency.

With a slight modification, these gears can be arranged to be placed below deck, and operated by a vertical shaft running to a stand in the wheel-house in the manner shown in the illustration. By means of a lever close to the hand-wheel, the gear can be quickly changed from steam to hand in the same manner that this is done in the larger gears.

As all machines are entirely self-contained, they can be easily and quickly placed in position on board.

The schooner Amazon is rightly named. She carried 6,360 gross tons of iron ore from Duluth to Cleveland. This is great carrying for a schooner rigged or any other rigged tow-barge, which the Amazon rightly is.

UP TO DATE.

The fast run of the Kaiser Wilhelm on her first trip, making New York from Southampton in five days, 22 hours and 45 minutes, shows that the Germans are becoming very skillful builders of ocean greyhounds. The Wilhelm's record is given too high a rating in some of the dispatches, however, unless the time of the last day is considered, when she beat all previous records by two knots, having covered 564 knots. But as a matter of fact the Lucania still holds the record, her speed from Queenstown to New York having been 22.01 knots an hour, while the Wilhelm's from Southampton was 21.39 for the entire voyage. The knots per hour establish the record.

The Wilhelm, while the largest steamship afloat, is not much larger than the Lucania. The gross tonnage of the former is 14,000 and of the latter 13,000. The Great Eastern dimensions are still the largest by a safe margin.

The first steamship record across the Atlantic was 22 days, made by the Savannah in 1819. This was cut to 18 days by the Great Western in 1839. Six years later it was reduced to 14 days by the Britannia. And in 1851 the Persia brought it down below ten days. Since then the record has been cut off by hours instead of days, and since 1882 by fractions of hours.

THE PROPER THING.

A movement is on foot at Port Huron to obtain free dockage for vessels during the coming winter. It is claimed that by an outlay of $500 enough docks can be secured to enable 150 steamers to lay up there. Many owners have offered to donate the use of their docks. It is said that the work on 150 steamers would amount to

NOS. 4 AND 5 UPRIGHT GEAR.
Suitable for below deck.

$150,000 at fitting out time and while wintering. It would pay any port to grant free winter moorings, and now that Port Huron has taken the initiative other cities should follow her lead.

BRITISH SHIPPING AFFAIRS.

The well-known house of H. E. Moss & Co., Liverpool, London, etc., report as follows on the shipping outlook:

"The interval between the issue of our last advices in March and today has been one of the most momentous for many years in steam shipping and the allied shipbuilding and engineering trades. The boom in freights last year was very short-lived; caused partly by the concentration of large amounts of tonange in particular parts of the world, whereas large masses of produce—principally cotton and grain—had to be moved quickly from the West, which, by means of the enormous modern cargo steamers, was soon effected, and freights fell to practically their former dead level. Today the crops in most European countries are if not a failure, most deficient in quality, which, combined with the plague and shortness in India as well as in Argentina, will necessitate enormous quantities of cereals and other produce being transported from America (both eastern and western seaboards), also from Australia and other long distances. As a natural consequence, the price of wheat has risen to a higher point than for many years past, and freights have advanced all round and will probably still further improve. The great strike now pending in the engineering trade, and likely to continue for some time, has put off the delivery of practically 250,000 tons of shipping this year, but has been to shipowners like a blessing in disguise, insomuch as it has tended to equalize the difference between supply and demand in the production of steam shipping. Trade in the United States of America has recently improved by leaps and America invariably reacts on this as well as other European countries, which have for months past already shown by their official returns a more healthy tone in commerce.

From reasons above expressed, and once given normal condition of affairs in India and Argentina, we are happy to say that after so many years of pessimistic opinions the prospects of steam shipping today are more hopeful and healthier than they have been for many years past, and, what is of more importance, are likely to continue so for some time to come.

Very few orders for new steamers, except for liners, have been of late given out, in consequence of the uncertainty of delivery caused through the great engineering strike, which is already driving many orders to the Continent. A large number of useful second-hand steamers have been sold, principally to foreigners; and we anticipate, during the coming winter, a still larger demand and an improvement in values.

Prices for building have, we may say, during the last twelve months, advanced fully 5 per cent, and in many instances more so; and with increased wages and cost of materials, we don't see how they can be lower.

As predicted for years past, we are glad to say our large companies and others have become alive to the fact of the necessity of weeding out their old and obsolete tonnage, and many steamers have been sold for breaking up. There are still many hundreds of thousands of tons that must be disposed of, and the sooner the better, as their money-earning powers have vanished for ever.

Sailing ships have almost become a drug on the market, and, except for large-sized vessels employed on long voyages, it is now almost an impossibility to employ them profitably. We fear their days are numbered in competition with modern cargo steamers, unless for ships subsidized by foreign countries.

AS AUXILIARY NAVAL CRUISERS.

The Navy Department has sent letters to the leading steamship agents, whose vessels have American registry, asking for information as to the displacement, speed and general adaptability of the vessels for war purposes in the event that they should be impressed by the government. As all ships of great tonnage now built in this country are so constructed they would readily meet the requirements of the navy as auxiliary cruisers should their services be required. Their rudders are well submerged and sheltered from shell and shot, and the propeller shafts are heavily protected from where they leave the vessel's bottom to the propellers. The decks are so constructed that they could be readily used for mounting the four, five and six inch rifles now being manufactured at the Washington gun factory, under the appropriation made two years ago for a large number of reserve guns.

The Navy at present carries on its list of vessels that would be available as commerce destroyers in war time the names of forty-two ships, thirty-two of which are on the Atlantic coast, six on the Pacific, and the rest on the Great Lakes, varying in speed from the high-powered American trans-Atlantic liners to the smaller ships plying between New York and West Indian ports. Eighty-five rifles are now available for installation on such ships, and with their carriages could be mounted within thirty days.

Chief Constructor Hichborn, under whose directions plans are being drawn by which the St. Louis type of vessels could be converted into formidable modern auxiliary cruisers, estimates that he can send the St. Louis to sea in three weeks fully equipped with an effective battery and with the vitals well protected by a system of coal bunkers. He estimates that the navy now has about one dozen ships which could be quickly converted under the plans already perfected, and the others could be made available in a little more time.

He anticipates that at least five years will be required to draw plans for the full list of vessels carried on the list of merchant ships that could be used for war purposes, and by that time rifles will have been delivered at the navy yard for every one of such ships.

EQUAL TO AN ADVANCE OF FIVE CENTS PER TON.

A raise or fall of 5 cents a ton in ore freights is a matter of great importance to vessel owners. The first of the recent 5-cent advances was like a drink in a thirsty land. How much more interest should be attached, then, to a permanent advance of 5 cents a ton over going rates throughout the season? An engineer who is given careful calculations regarding the cost of carrying freight on the lakes figures that a reduction in fuel bills of the steamer Kaliyuga, due to the application of the Howden Draft, changes in engines, etc., is equal to an addition on the business of the ship for the season of 4 or 5 cents a ton in ore freights. Some owners who have had vessels equipped with this apparatus refuse to tell just how much it is saving for them, on the claim that they are at an advantage in carrying freight so much cheaper. They do not believe in paying for experience for the benefit of the other fellow. In the case of the Kaliyuga, however, figures have been given out, and from them the calculation referred to has been made.

The steamer Continental was equipped with Howden Draft in time to go into commission early this season. Officers of the Republic Iron Company state that before being fitted with the draft she burned 234 pounds of coal per mile and 1,871 pounds per hour, running 8 miles an hour. This season she runs 8.39 miles an hour with 171 pounds per mile and 1,434 pounds per hour. With the new draft, run of mine coal is used instead of lump and a saving in fuel bills secured on this account also. These two facts reduced to figures will, in the case of the Continental also, show a saving equal to 5 cents a ton in ore freights. Claims of this kind are certainly worthy of careful consideration from vessel owners.

MISTRESS OF THE PACIFIC.

Though Japan's naval activity is primarily significant of a purpose to secure general predominance in Oriental seas, and though, as I have suggested, there is no immediate reason for, or prospect of, trouble between Japan and the United States involving naval armaments, yet, in the broad general sense of dignity on the sea, our country can by no means safely ignore or be inattentive to the progress of our Oriental neighbor toward the rank of a first-class sea power on the Pacific Ocean. The completion of her fleet now building will, inside of three years, give Japan that rank, and the future programme of Japan's new navy is even more significant than its enormous quantity. She has no useless ships, none obsolete; all are up to date.

Meantime, the attitude of the United States seems quite as supine as that of Russia. It is not necessary to go into minute detail on this point. Suffice it to say that, taking Russia, Japan and the United States as the three maritime powers most directly concerned in the Pacific Ocean, and whose interests are most immediately affected by its command, Japan at her present rate of naval progress, viewed with relation to the lack of progress of the other two, must in three years be able to dominate the Pacific Ocean against either, and, in less than ten years, against both."—From "The Coming Sea-Power," by Charles H. Cramp, in "North American Review" for October.

THE NEW STEAMER MIAMI.

On the same stocks at Philadelphia, once occupied by that transatlantic greyhound the "St. Louis," and in the yard of the William Cramp & Son Ship and Engine Building Company, there is now in course of construction and soon to be launched, a steamship that will interest the people who frequent in winter east and southern Florida, quite as much as the "St. Louis" or "St. Paul" ever did the people of the north or west. We refer to the new steel steamship "Miami," being built by Mr. Henry M. Flagler of New York for the route at the terminus of his railway at Miami on Biscayne Bay and the Bahama Islands.

This elegant steamship "Miami" is a model and without a peer in her class, and like the "St. Louis" and "St. Paul," is built in accordance with the requirements and under the rules and inspection of the American Shipmasters' Association, to class A. I. for twenty years in the "Record of American and Foreign Shipping."

She is 240 ft. long between perpendiculars, 40 ft. beam moulded and 23 ft. deep, has 3 decks and two tiers of staterooms, the berths and trimmings of which are finished in "prima verna"—white mahogany. All sleeping arrangements are in accord with the best and most modern experience. The dining room is amidships and is tiled throughout with rubber interlocking tiling, in three colors to correspond with the trimmings, which are white and gold. A vaulted dome in the center, admits and diffuses light over this room with artistic effect. The glass and embellishments of the dome are said to have cost several thousands of dollars. The gallery and all matters relating to the culinary department are located in the stern or after part of the vessel, it being the desire of the management to arrange this department so that no fumes of cooking can be discernible throughout the ship.

The machinery consists of two independent three cylinder triple expansion engines, actuating two independent Manganese Bronze, three blade propeller wheels. Each engine is supplied with a separate surface condenser air and circulating pump. Steam is supplied by four cylindrical return tubular boilers.

This specimen of naval architecture and marine engineering is lighted and ventilated throughout by two duplicate instalations of electric machinery, each stateroom having its independent fan for ventilation and on the top of the pilot house is also located an adjustable 4,000 candle power electric search light, capable of projecting its rays fully two miles on the darkest night, which is of incalculable value in enabling a vessel to navigate when entering or leaving a harbor on a dark or stormy night.

The "Miami" will be schooner rigged and have two smoke stacks; she will be steered by steam and her anchors of the stockless type will also be handled by steam. From her complete double installation of machinery throughout, her two smokestacks and her two masts, which make her a vessel of unusual symmetry, she might with all propriety have been called the "Duplex." Mr. Flagler, however, from his admiration for the place and the name "Miami," decided to name her after the Floridian city Miami.

The novelist writes of "Ships that Pass in the Night,' but the Miami will hardly allow a night to pass between the time of her departure from the Florida coast and her arrival at the port of Nassau, since she is required to make a speed of 16 knots per hour under actual conditions incident to this voyage of 180 miles over the tropical waters of the Gulf stream.

We would further remark that the builders deserve great credit for both the despatch and excellence with which they have produced this vessel, within six months from the date of signing the contract, this ship has been finished and furnished in every detail.

Mr. H. F. J. Porter, General Sales Agents of The Bethlehem Iron Co., with headquarters at 1433 Marquette Building, Chicago, Ill., has during the past six months been located at the works in South Bethlehem, Pa. Mr. Porter is spending a few days at his office in Chicago, and reports that there is a decided improvement in the steel forging business in the East, and that there are evidences that business will pick up rapidly in the West. He will return to the works and have his headquarters there during the winter. His western office will be in charge of his assistant, Mr. Erwin Nelson, who will be glad to answer all correspondence and give information on matters relating to steel forgings of all descriptions.

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A company of about twenty people left New York this week in a small schooner bound for the Yukon via Cape Horn. These people have banded together under the name and title of the Pacific Mining and Trading Co. This number is quite sufficient for a small fishing schooner to carry, especially as there are one or two women in the expedition.

For the season up to October 1 the movement of freight through the "Soo" canals in both directions was, ore. 795,000 tons greater than for the same months of last year. Bituminous coal shipments have been slightly over 900,000 tons below the figures of last year, and the movement of wheat through the same channels has fallen short approximately 13,000,000 bushels. The amount of hard coal carried to Lake Superior is considerable in excess of last season, and flour shipments are somewhat larger. The most interesting item, soft coal, is below the figures of 1895 by over 2,000 tons. Only 130,195 tons of this commodity were sent to the upper lake in September. The aggregate freight movement to and from Lake Superior, as shown by the "Soo" reports, was 13,589,183 tons, as compared with 12,793,441 tons for last season up to October 1. The total ore shipments up to October 1 were 9,807,571, an increase of 1,531,479 tons. Lake Michigan's proportion is, therefore, easily determined.

Some interesting statistics have recently been printed by a foreign exchange giving the cost of running one of the finest Cunard liners. The crew numbers from 45 to 50, including captain and four officers; 150 men are employed in the engineering department, and 120 are employed in the passenger and stewards' departments; or in round figures, there are in all about 300 hands. The Atlantic captains' salaries vary from £600 to £750, but in the record-breaking greyhounds they amount to £1000 per year. The monthly wage-bill runs to about £2000. The coal is a costly item. The Campania, with her 100 furnaces, burns 500 tons a day, the estimated cost of voyage coming to £4000. The food bill varies; an authority quotes it at £4000 for a single voyage, or £7000 out-and-home passage in the busy season. The cost of repairs is great. A big ship involves an outlay of £1000 per month, not including the extensive overhauling which takes place every year or two. £300 per month on these huge steamers goes in supplying the oil for the machinery. Cost of insurance is £1000 per month. The original cost is about half-a-million ready for sea. It will be seen from the above that a large income from passengers is absolutely necessary to keep such ships running at a profit.

LAKE SHIPBUILDING.

It is now almost certain that before the snow flies there will be at least a score of large sized vessels, ranging from 300 to 475 feet in length, under construction at lake shipyards, two or three new contracts having developed this week, with others waiting to be closed. Besides the foregoing there is some special and a good deal of miscellaneous tonnage now under way and other orders to be closed. In the former class might be placed the two handsome perfectly built and specially equipped revenue cutter steamers under construction at the yards of the Globe Iron Works Co, in addition to their other new work. At this writing the Cleveland Ship Building Co. take the palm for having the contract to build the largest craft ever put together on the lakes, viz., a 450-foot, high-classed cargo steamer, to be fitted with the latest and best, including quadruple expansion engines and to be thoroughly equipped with all improvements that will tend to facilitate the prompt handling of ship and cargo. A dimension of 475 feet over all has been spoken of recently and for a special trade, with, of course, special facilities at ports of loading and discharge, such a lengthy vessel could no doubt be worked to advantage, but, under the present conditions of docks, harbors, channels, etc., such dimensions would hardly get around in the general carrying trade and would be a good deal in her own way a part of the time.

In miscellaneous tonnage there are railroad car ferries, tugs for salt and fresh water service, small wooden tonnage, including yachts, barges, canal boats, barges or lighters, etc., etc. Every lake shipyard, especially the larger ones and those that have engine and boiler shops connected therewith, are busy and likely to be busier, and it is more than probable that prices for shipbuilding will take an advance with a wider latitude given builders on the time limit for delivery or completion of new contracts.

Since writing the foregoing, contracts for three large steel vessels that will carry 20,000 tons of ore on a trip on a draft of seventeen feet of water and which will cost between $500,000 and $600,000 were closed by Mr. L. M. Bowers, general manager of the Bessemer Steamship Co.

The boats, which will be a steamer and two consorts, will be built at the yards of F. W. Wheeler & Co. at West Bay City. They will be larger than anything yet built on the lakes. The steamer will be 475 feet over all, 455 feet keel, 50 feet beam and 29 feet deep. She will have quadruple expansion engines, cylinders 28, 40, 59 and 85 inches, with 42-inch stroke. Steam will be furnished by four Scotch type boilers to be allowed 200 pounds working pressure to the square inch. Her water bottom will be 6 feet deep. The new boat will be 25 feet longer than the big steamer now building for A. B. Wolvin of Duluth at the yard of the Cleveland Ship Building Co. at Lorain and on a draft of 17 feet will carry 6,500 gross tons of ore. It is figured that 3,200 tons of metal will be used in her construction.

The schooners will be larger than any steamer that has been turned out on the lakes up to the present time and will be the greatest carriers on fresh water. The schooners will be 450 feet over all, 435 feet between perpendiculars, 50 feet beam and 28 1-2 feet deep. They will have 5 1-2 feet water bottoms and 2,600 tons of metal will be used in the construction of each of the boats. They will carry 7,000 gross tons of ore on 17 feet, which will make the carrying capacity of the three boats over 20,000 tons to the trip. The schooners will have very heavy towing machines and stockless anchors, fourteen hatches with 24-foot centers. While the new boats will be great carriers, they will be made as strong as possible without using any unnecessary material. According to the contract the boats will be completed and ready for business May 1, 1898.

The manager of the Bessemer Company is figuring with builders for another fleet of boats, a steamer and a consort of the same dimensions, for later delivery, and a contract may be closed in a few weeks. Early next season the Bessemer Steamship Co. will have twenty-one steel vessels in commission and will have about $4,000,000 invested in vessel property. During a full season one of the big tows of the Bessemer fleet can make twenty trips from the head of Lake Superior, and as the three new boats can carry 20,000 tons a trip they could move 400,000 tons of ore in a season.

Taking this one contract alone it is estimated that 8,500 tons of steel will be required to fill the order and it is safe to say that winter employment for about 500 men is assured at the yards of F. W. Wheeler & Co., West Bay City.

A race between two ships from Philadelphia to the Pacific coast or say over a 10,000-mile course, began this week. Of the contestants, the Tacoma was built in Bath, Me., in 1881, and the Indiana in 1876, so that they are of a good ripe age to enter the list of clippers at this date, besides, their respective qualifications ought surely to be well known by their respective masters and owners long before this.

Should a Carnegie-Rockefeller combination begin to manufacture iron and steel at the head of the lakes, handy-sized vessels could be used to transport the finished product East in place of the larger carriers now thought necessary to carry ore in paying cargoes.

LAKE FREIGHTS.

Coal tonnage is in good demand all round. The Milwaukee rate has been firmly established at 40 cents, the same rate has been paid to Manitowoc and charters were made for the head of Lake Superior at 30 cents, which is an advance of 5 cents. For boats to load next week 30 cents is freely offered and owners are holding for 35 cents to Ft. William. A block of about 50,000 tons of coal to go to the head of Lake Superior was covered Wednesday at 30 cents.

Ore freights remain at last week's figures, with a rather dull inquiry for tonange. For over a month now 65 cents from the head of the lakes, 60 cents Marquette and 55 cents Escanaba has been the prevailing rate, much to the weariness of vessel owners; and it is confidently expected, that they will go a notch higher within the next few days.

No change can be noted this week in grain freight rates. The steady 1 3-4 cents on corn from Chicago to Buffalo still holds on and wheat from Duluth to Lake Erie is holding at 2 cents with little signs of advance, though the improvement in coal freights will have the effect of soon making a better rate on both ore and grain charters.

LOCAL STEAMBOAT INSPECTION SERVICE.

The following statement has been published regarding the office of steamboat inspector at Grand Haven:

"Apr. 26 last a civil service examination was held at Grand Rapids to fill the vacancy in the inspectorship of hulls in the Grand Haven local district. There were eight or nine candidates, some of whom passed the examination. Shortly before the examination Capt. John M. Langley was appointed to the place by the secretary of the treasury on recommendation of Senator Burrows. Three times since then he has been given temporary appointments to that position, each for three months, the reason given out being that there were no eligibles, which seems like proof to some that he himself has not passed the examination.

But the fact remains that there is at least one eligible. He is Capt. Waterman G. Phelps. He took the examination and passed 88 per cent., a high average, receiving his certificate July 22. Capt. Phelps is a school teacher in the winter and a sailor in the navigation season. He is generally well informed, and is said to be thoroughly competent not only to sail lake vessels, but to fill the position of inspector of hulls. But. Capt. Phelps has no pull. There is no senator back of him, not even a congressman. He depended solely on his merits, as shown by the examination, and it looks as if he was going to be left out.

Nobody seems to have anything to say against Capt. Langley personally. He is said to be a good lake pilot. The examination demands that the applicant be well informed on hull construction, the lake navigation laws and rules, a knowledge of the lakes themselves, reading, arithmetic, as used in the office of the inspector, and other subjects along those lines. He received his third appointment only a few days ago. According to the civil service law he cannot be re-examined until a year elapses from the date of his last examination.

In contradiction of the foregoing Supervising Inspector-General Dumont is quoted as saying that the permanent appointment to the Grand Haven vacancy, now temporarily filled by Capt. Langley, will be made next December. Capt. Langley, not being listed on the civil service role of eligibles, must consequently retire.

WIRELESS TELEGRAPHY FOR NAVAL USE.

Much attention has been attracted to the experiments in wireles telegraphy. The experiments are arousing considerable interest among naval electricians, who have already commenced trials that will doubtless last over a

considerable period. Several continental powers are preparing for extensive experiments, with a view to the adoption of the system. Germany having already commenced them at the Kiel Naval Arsenal, and Russia and Austria have given notice of their intention of doing so. Experiments with Signor Marconi's invention have been carried out on an extesnive scale in Italy, at Spezzia, between forts on shore and warships some miles out to sea, and communication was established over very long distances. We are told that the Italian authorities secured to the mast of a ship, 90 feet high, a vertical copper wire, 10 millimeters in section, well covered with gutta percha, one attached to the receiver on board, the other end free. Another mast of the same height was erected on shore, and the transmitter attached to its vertical wire. Two iron-clads were employed, and the operations lasted for a fortnight, it being clearly demonstrated that the instruments could be securely placed deep down in the hull, messages being perfectly intelligible by the receiving instrument in a cabin 8 feet under water, notwithstanding its surroundings of massive iron.

AN OPEN WINTER PASSAGE.

Relative to the Lake Erie car ferry project to run between Sandusky and Detroit all the year round, Mr. F. B. McCormick, South Pelee Island, Ont., says:

"For 30 years I have advocated a line of car ferries across Lake Erie from Sandusky in summer and from Marblehead (six miles northwest of that city) in winter, east of Lilly Island, Ohio, and Pelee Island, Ont., to either Wheatly or Leamington, Ont., on the Canadian shore, but 40 miles from Sandusky and 35 from Marblehead. In summer boats will go where there is water to float them, but in winter the ice forced by wind and currents forms a formidable barrier west of the islands, on the Detroit and Sandusky route.

"But the same westerly winds which force it in huge masses on the western sides of the islands, and into Pigeon bay, sweep it off shore into the broader basin of Lake Erie to the east, and leaves for the entire winter an open water passage east of the islands, from Sandusky to the main Caandian shore. Fifty years of personal knowledge gained on the spot makes me speak positively as to this. For months in the coldest winters a dark blue line of open water stretches from north to south across Lake Erie, the very intensity of the cold binding the ice more firmly to the shoals and shores of the islands to the west.

"I submit that this great natural fact is worthy of the closest attention of those interested in the transit of coal across Lake Erie to all points either in Michigan or Ontario.

"In summer it is the shortest and in winter the shortest, safest and surest route across Lake Erie, the only one almost entirely free of ice. I refer any one interested to the maps and to old residents on either mainland or the island."

TO MANUFACTURE IRON AND STEEL AT THE HEAD OF THE LAKES.

A special dispatch from Duluth contains information which if true, is of vast importance to the ore and iron and steel industries of the United States.

It is stated that Andrew Carnegie contemplates manufacturing iron and steel at the head of Lake Superior, in the heart of the immense iron ore producing properties which he has acquired within the last year. The telegram says:

"A report is current here, which originated from an apparently reliable source, to the effect that John D. Rockefeller and Andrew Carnegie have formed a combination, and will soon begin the manufacture of iron and steel at the head of the lakes.

"It is known that Mr. Rockefeller has secured control of the West Superior Iron and Steel Company's plant, and there is good authority for the statement that Andrew Carnegie has secured control of the Ironton Structural Steel Company's plant and blast furnaces. W. W. Rend, of Pennsylvania, is also known to be interested in the Ironton plant, and is believed to be a party to the Rockefeller-Carnegie combination.

"In this connection it is also said that the St. Louis River Water Power Company, of which Jay Cooke, of Philadelphia, is in control, has sold an option to an Eastern syndicate supposed to be close to Rockefeller and Carnegie, and that this power will be used in manufacturing electricity with which to operate the steel plant.

"A few weeks ago a number of Eastern capitalists and officers of the Carnegie interests visited Duluth and Superior and looked over the steel plants and blast furnaces. Recently F. W. Gates, Mr. Rockefeller's confidential man, employed a number of experts to investigate the steel plants, and they were busy with the work up to a few days ago.

"The last Minnesota Legislature passed a law providing for a rebate of all State royalties on iron mined and manufactured in the State, thus making it more profitable to ship coke from the East than to ship the ore there before being manufactured."

The manufacture of iron and steel at the head of the lakes has never been carried on with any great degree of success pecuniarily. Unfortunately the ore mining region is lacking in coal deposits. With fuel close at hand the ore producing region would be the most advantageous location for iron plants in the United States, excepting the Alabama region. It has been said that iron and steel mills at the head of the lakes might command the markets of the contiguous northwestern territory.

NOTICE TO MARINERS.

Office of U. S. Light-House Inspector,
Tenth District,
Buffalo, N. Y., October 13, 1897.

Notice is hereby given that the gas buoy on Starve Island Reef, and the red nun buoy on Kelly's Island South Shoal, Lake Erie, displaced by tug Vigilant and raft, have been replaced in position.

THEODORE F. JEWELL,
Commander, U. S. N., Inspector 10th L. H. District.

JOHN N. PHILIPS, ALEXANDRIA BAY, N. Y.

Holds the service record as a marine engineer on the lakes, now serving his forty-fourth season, never missed a trip or laid off a watch during his career. Now chief engineer of the Gov. Smith.

SUBMARINE WORK.

After having been submerged i n180 feet of water for several years the treasure on board the steamer Skyro, sunk off Cape Finisterre in April, 1891, has been recovered by divers. The Skyro sailed from Cartagena, bound for London with a valuable cargo, including bar silver, valued at $45,000. All went well until approaching Cape Finisterre in foggy weather when the vessel struck on the Mexiddo reef, but passed over and went down in deep water within 20 minutes, and about two miles off the coast. An expedition went out in the same year, but was unable to secure the treasure.

Last year another effort was made, with more powerful diving apparatus and resulted in 59 bars being recovered. The working depth for the diver was never less than 28 1-2 fathoms—171 feet—and it frequently exceeded this.

To obtain these bars it was found necessary to blow away the deck with dynamite, which the diver did, only after great difficulty, owing to the bad state of the weather. Work was compulsorily suspended in October last, but again resumed this summer with satisfactory results.

FOUNDERINGS.

On Thursday last the schooner Antelope, bound up with a cargo of coal in tow of the steamer Hiram W. Sibley, foundered off Michigan island, one of the Apostle group, Lake Superior. After the vessel sprung a leak the pumps were started, but as it was apparent that the boat could not be saved the crew was transferred to the Sibley. It is said that the cause of the foundering was that the Sibley was to fast for the schoner's old timbers in the choppy sea that prevailed. The Antelope was formerly a passenger steamer plying between Chicago and Buffalo, but was cut down into a barge a few years ago. The loss on the boat and cargo was about $13,500.

Another disaster which was caused by the stress of weather was the loss of the steamer E. B. Hale. The E. B. Hale, bound from Lorain to Milwaukee with steel billets, foundered on Lake Huron Friday afternoon.

The Hale was in command of Captain James Lawless. She encountered a southwest gale when about half-way across Saginaw Bay. At 8 o'clock in the morning a steam pipe burst, leaving the vessel helpless in the storm, which was steadily increasing in violence. Immediately after the accident the Hale fell off into the trough of the sea. She was sighted flying signals of distress by the Nebraska, who bore down on her and Captain Lawless of the lost steamer says the Nebraska tried hard to save the Hale, but was unsuccessful. Tow lines were passed from the Nebraska to the helpless boat with the view of holding her head into the sea while repairs were being made, but the lines parted and the Hale fell back into the trough of the sea. She foundered about half an hour after the Nebraska gave up the attempt to tow her. The Nebraska stayed by the imperiled crew four hours. The Hale sank in forty fathoms of water.

The schooner Sandusky, which the Hale had in tow, continued under sail after the steamer had become helpless, and was soon lost sight of on Lake Huron. The lost boat was owned by M. A. Bradley, of Cleveland, and was not insured.

She was built in Cleveland in 1874 and measured 928 net tons. Her value in Lloyds is set down at $30,000. The cargo consisted of 1,186 tons of steel billets, which were doubtless insured.

NEW CARD RATE OF WAGES.

At a meeting of the executive committee of the Lake Carriers' Association held at the office of Capt. James Corrigan on Wednesday a new schedule of wages to go into effect Oct. 15 was adopted. Most of the members were in favor of advancing the wages of the men employed before the mast and it didn't take long to fix up the card. No change was made in the wages of engineers, mates or cooks on steamers or mates on sail vessels. The wages of firemen, wheelsmen, lookouts, oilers and deck hands on steamers were advanced from $5 to $7.50 a month. The new schedule is as follows:

	Per Month.
On first and second-class steamers:	
Firemen	$37 50
Wheelmen	37 50
Lookouts	37 50
Deck hands	20 00
Oilers	37 50
On third-class steamers:	
Firemen	32 50 to $37 50
Wheelmen	32 50 to 37 50
Lookouts	32 50 to 37 50
Deck hands	20 00
On first-class schooners:	
Cooks	$37 50
Seamen	37 50
On second-class schooners:	
Cooks	$32 50
Seamen	27 50 to 32 50

THE ARGONAUT A SUCCESS.

A preliminary trial of the submarine wrecking boat Argonaut has been held in the dry-dock of the Columbian Iron Works, Baltimore, where she was built, the result of which is said to have been highly satisfactory to her inventors and owners.

She was submerged in 21 feet of water, remaining under the surface for two hours, during which time constant communication was kept up with those who were in her cabin and engine room by means of a rubber tube. Many tests of her engine were made, and while the trial was merely a private one, the inventor asserts that enough was learned to make it certain that the boat will be able to perform the work for which she is designed.

H. C. BURRELL,

Marine Reporter.

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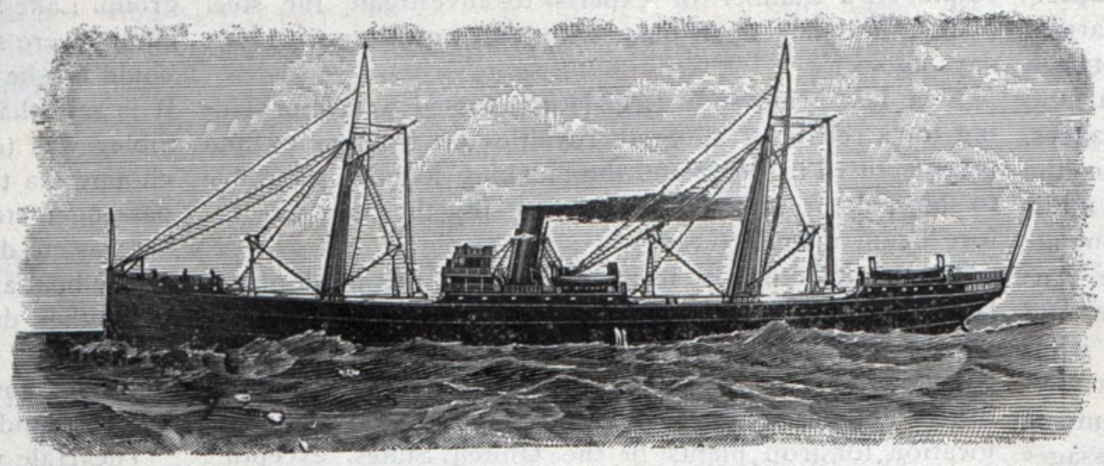

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OLD CLIPPER SHIPS.

There is no doubt but that there was some noble work done in the sailing ship days when the most noted vied with each other in making the shortest passages. A contemporary in summing up the record of quick voyages made by the famous old clipper ships says: "A premium of $5 per ton, shared by the captain with his owner, for the first consignment of China tea or Australian wool was calculated to make a man strive harder and undergo greater exertions and run greater risks than could be afforded by the somewhat barren honor of coming in first and winning a miserable $250.

Wonderful stories are told of the achievements of the men who strove for the greater prize. The Surprise, a famous vessel of her day, went out to San Francisco on her first voyage in 96 days, and reefed her topsails only twice in that time. Then she crossed the North Pacific to Canton in 31 days and brought a cargo of tea to London. She is said to have secured $30 per ton freight, and by the time her captain took his freight money in London she had paid her cost and running expenses, and left the owners with more than $50,000. The Samuel Russell made 318 miles in one day in 1851, while homeward bound from Whampoa, and during 30 successive days she covered 6,722 miles, or nearly half the distance between China and New York.

But the very best day's run was that of the Flying Cloud, in an earlier generation. She went to San Francisco in 84 days, and we have it on the authority of Maury himself that on this voyage she in one day, from noon to noon, covered 433 1-4 statute miles. In 1851 the Sovereign of the Seas reached San Francisco from New York in 102 days, after having been partially dismasted off Valparaiso, and after having lain to for 14 days to be rerigged. This same vessel, after discharging at 'Frisco, sailed for Honolulu, and came home from that port in 88 days. For 10,000 miles she sailed without tacking or wearing once, and in ten consecutive days made 3,300 miles. From New York she sailed for Liverpool, became becalmed off the banks of Newfoundland, and when a breeze sprang up came across from there to the Mersey in 5' 1-2 days; the whole trip, occupying only 13 days 19 hours. Next year, returning from San Francisco, she covered 6,245 miles in 22 days, being an average per day of 283.9 miles. Her best time from noon of one day to noon of the other, was 419 miles, which comes very near the record of the Flying Cloud.

Another famous vessel was the Natchez, which once came from Canton to New York in 76 days. She made six voyages altogether, and the longest of the six was only 98 days, on this route. A noteworthy race of htose days was that of the John Gilpin and the Flying Fish. They left New York in company and appeared inside the Golden Gate within a few hours of each other after a passage of 94 days. But the most remarkable individual trip ever accomplished was that of the Dreadnought, which came across from New York to Liverpool in 9 days 17 hours. The Dreadnought's career from beginning to end was a race against all comers and she invariably scored.

EASTERN FREIGHT REPORT.

Messrs. Funch, Edye & Co., New York, in their weekly freight report to the Record state that, "The decline in grain freights has again given way to firmer quotations under the influence of increased demand from Europe, and freights to Cork f. o. for this and near months' shipment may again be quoted at 3s. 7 1-2d, with a prompt boat relet at 3s. 9d. For later months 3s. 6d. continues top figure, and large vessels to load on the berth can still be placed for prompt shipment at 3s. @ 3s. 1 1-2d. as to port, for full grain cargoes; for later similar tonnage the privilege of a portion of general cargo would probably be imperative. Berth freights have advanced during this week, and are now quite up to the parity of rates paid for large vessels. The demand for cotton tonnage has very largely fallen off during the last few days, and at the moment there is practically no enquiry for either prompt or later boats, charterers being evidently now, if anything, overshipped. Vessels for case oil freights are offering less sparingly, causing charterers to reduce their bids in return. We are enabled again to note some enquiry for timber from the Gulf ports, after a lengthened period of inactivity.

We have nothing new to report in regard to our market for sailing vessels, which remains firm on account of the continued scarcity of tonage. The volume of actual business accomplished has of necessity been small, as the difference between the demand of owners and charterers' ideas is too considerable to permit of more active transactions.

Supervising Inspector-General Dumont, of the steamboat inspection service, is the oldest chief of bureau or department in Washington, and for 21 years has held his commission. He is about the only one of them all with a commission signed by General Grant. Some years ago Gen. Dumont made the statement that traveling by steamboat was safer than traveling by farm wagon, and unthinking people thought he was getting a little loose on facts.

This week, in talking about the matter, Gen. Dumont said to the Detroit Journal: "I was not wrong when I made that statement back in the seventies, nor am I now. There are more people travel by boats than any other way, something like 700,000,000 a year, I figure. When I first made the figures, boats were killing one passenger in about every 50,000; but now, my last report shows, they do not kill one in 1,800,000. The reason that the boats show up as carrying so many people is the ferry system in the large cities, where crowds use the boats night and morning. Places like San Francisco and New York. I have not been west before in 17 years, that is, clear to the Pacific coast, and was much impressed by the changes.

"While there is a general improvement in all business, yet Seattle is where the trade is furious. As a matter of fact the merchants there could not get goods fast enough to sell them. There has been a vast deal of money poured in there on account of the Klondyke craze. Every man spent on an average $500 for his outfit, and there have been thousands who went up."

VISIBLE SUPPLY OF GRAIN

As compiled for The Marine Record, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY. Bushels.
Albany	.....	100,000	75,000	.....	.....
Baltimore	1,007,000	758,000	379,000	98,000	.....
Boston	450,000	901,000	16,000	.....	.....
Buffalo	1,002,000	836,000	763,000	64,000	568,000
" afloat	.....	.....	.....	.....	.....
Chicago	3,361,000	18,958,000	3,182,000	845,000	355,000
" afloat	.....	.....	.....	.....	.....
Cincinnati	8,000	4,000	15,000	6,000	22,000
Detroit	341,000	10,000	19,000	48,000	13,000
" afloat	.....	.....	.....	.....	.....
Duluth and Superior	2,574,000	423,000	167,000	668,000	707,000
" afloat	.....	.....	.....	.....	.....
Indianapolis	145,000	116,000	19,000	1,000	.....
Kansas City	1,520,000	243,000	77,000	32,000	.....
Milwaukee	107,000	391,000	48,000	51,000	193,000
" afloat	.....	.....	.....	.....	.....
Minneapolis	2,779,000	377,000	1,897,000	71,000	8,000
Montreal	369,000	25,000	260,000	55,000	27,000
New York	2,377,000	8,792,000	3,478,000	309,000	54,000
" afloat	8,000	.....	24,000	21,000	90,000
Oswego	20,000	120.000	.....	.....	60,000
Peoria	2,000	72,000	36,000	.....	.....
Philadelphia	904,000	1,353,000	106,000	.....	.....
St. Louis	1,579,000	983,000	596,000	268,000	1,000
" afloat	130,000	.....	.....	.....	.....
Toledo	431,000	508,000	419,000	62,000	.....
" afloat	.....	.....	.....	.....	.....
Toronto	38.000	.....	3,000	.....	13,000
On Canal	349.000	989,000	166,000	168,000	140,000
On Lakes	3,293,000	1,744.000	1,637,000	185,000	521,000
On Mississippi	.....	1,000	1,000	.....	.....
Grand Total	22,794,000	37,704,000	13,380,000	2,944,000	2,772,000
Corresponding Date, 1896	52,434,000	14,468,000	9,533,000	2,031,000	2,920,000

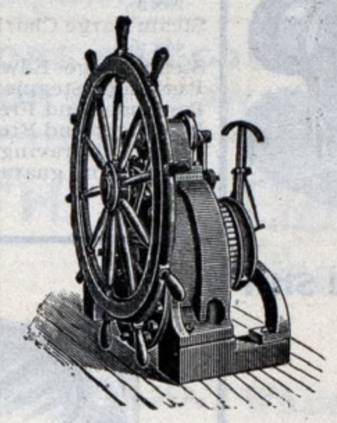
NOTES.

In his eighty-ninth year Mr. Charles H. Haswell has lately been busily engaged in bringing out, through the Harpers, a new edition of his "Mechanic's and Engineer's Pocket-Book," which, since its first publication, in 1844, has passed through more than sixty editions, and has maintained its authority as a standard work. Mr. Haswell's activity is, indeed, typical of his whole career, which has been one of remarkable usefulness. Born in New York, he displayed at an early age a natural fondness for mechanics. His first training was in the steam-engine factory of James P. Allaire, in New York City, where he was employed for several years. In 1836 he received the appointment of chief engineer in the U. S. Navy, and during the year following he constructed the first steam launch to be put to practical use in this country. He was the first to use zinc in a marine steam boiler, and in the hold of an iron steam vessel, though this distinction was claimed by an Englishman twenty years later.

In 1844 he was made engineer-in-chief of the engineer corps organized in 1839, and served in this capacity for six years, when ill health caused him to retire. After traveling in Europe, he returned to New York and devoted himself with conspicuous success to large engineering enterprises. Mr. Haswell has held several important public offices, in which he has done notable work, and he has been conspicuous as on of the trustees of the Brooklyn Bridge, and as a member of the leadig societies of engineers in this country, and of the institutes of civil engineers and naval architects of Great Britain. In addition to his "Mechanic's and Engineer's Pocket-Book," he has published several other important works connected with his profession, and last year he brought out, through the Harpers, an interesting work entitled, "Reminiscences of an Octogenarian of the City of New York."

Paymr. H. L. Wait, late U. S. Navy, while one of a party of military men on a recent trip aboard the handsome steam yacht Pathfinder on Lake Michigan, started, says the Army and Navy Journal, an interesteing discussion on the value of yachts on the lakes as warships in the event of trouble. Among other things Paymr. Wait said. "With a little structural strengthening to carry the guns necessary, and taking into consideration her great speed, a yacht would be a commerce destroyer of great efficiency. Remove the deck-houses and place a 3-inch gun forward and several rapid firing guns aft, and add a torpedo tube, and she would become an exceedingly efficient gunboat, which could work an immnse amount of damage to the enemy's shipping. The Canadians in their three so-calledfishery protection cutters, have as many good fighting ships of small size. They have heavy ram bows and they are well prepared to take on additional guns at a minute's notice. The Canadians also have the guns for the purpose stored in a handy position, and in case of war being declared, they could be prepared and steam right up to our lake front in a matter of hours. The necessary boats to combat with these cutters are such as this one. They must be fast and small, so as to handle easily. The small guns on the Pathfinder would do all the execution necessary, the boat itself would be a small mark for the enemy's guns. Our revenue cutters are ali right for this business, but it would take too long to get them ready. We should have the guns and torpedoes all stored in a handy place as they have them in Canada, ready at a moment's notice. Then, too, we ought to have a body of men, drilled in fighting, on shipboard, and in this our naval militia would prove the right thing. This country has been tardy in making preparations, not for war, but to prevent war, but we should be at it before it is too late.

Queen City Hydraulic Steerer.



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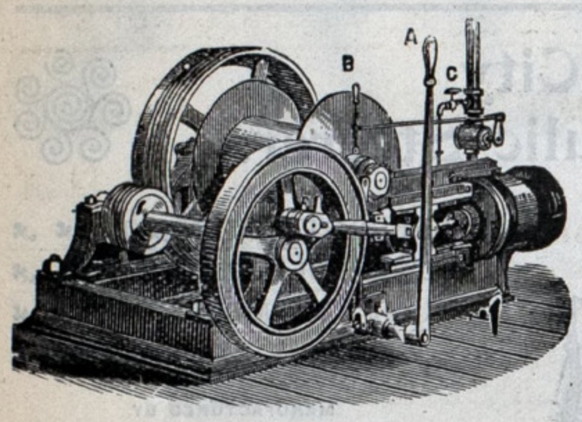

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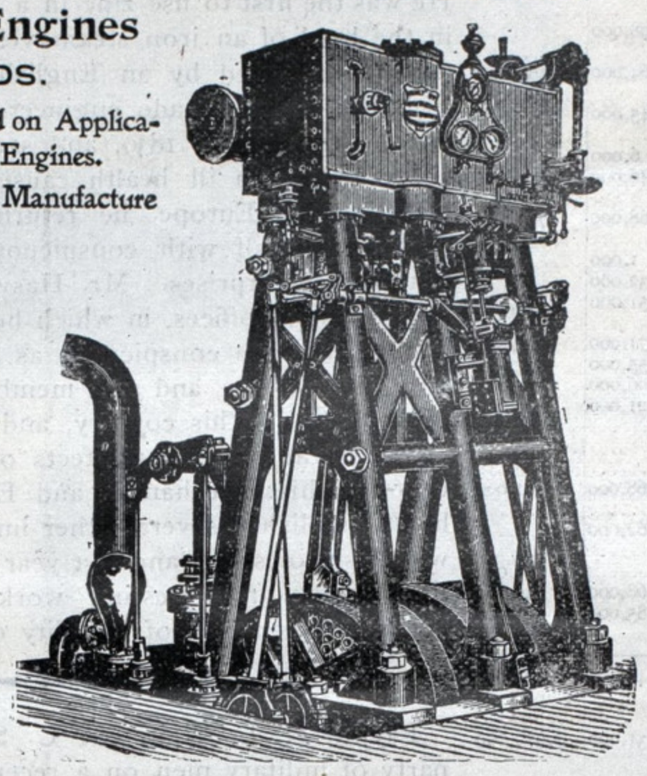

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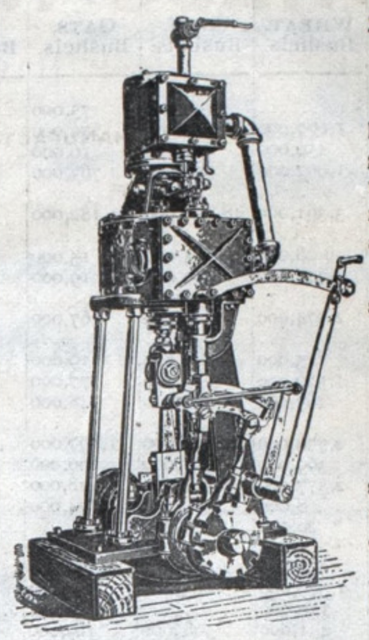

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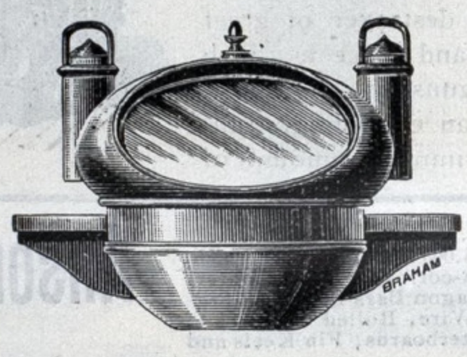

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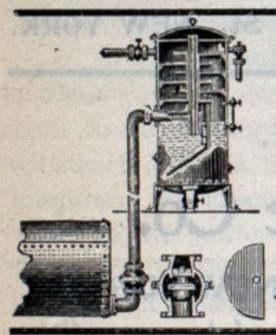

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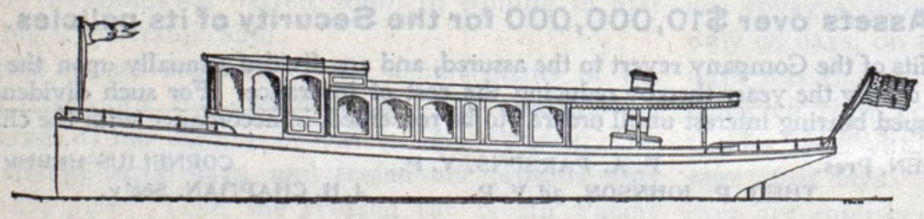

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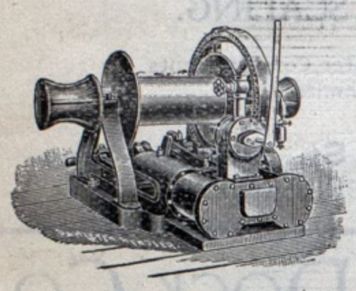

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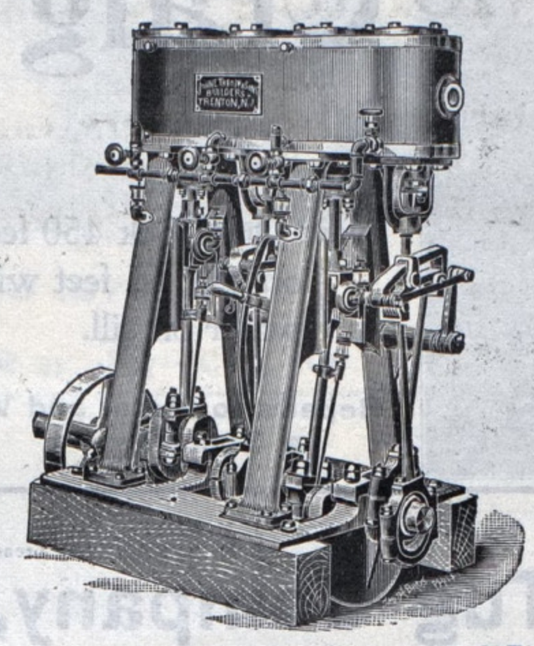

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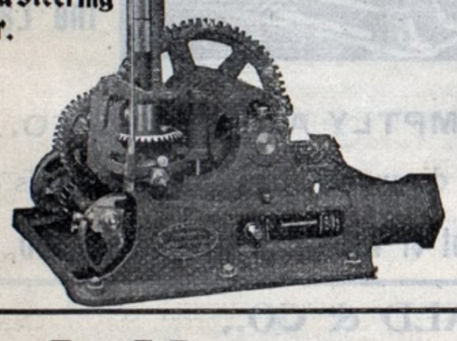

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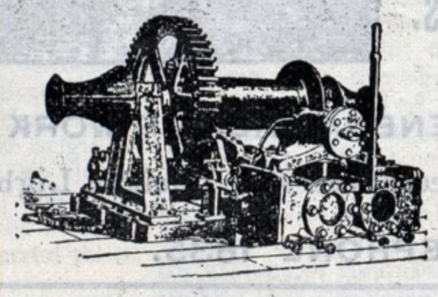

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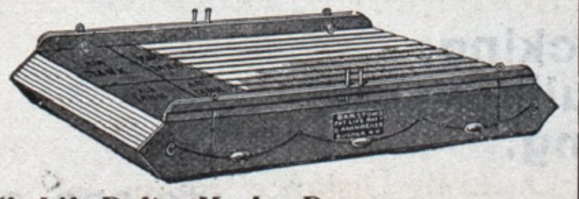

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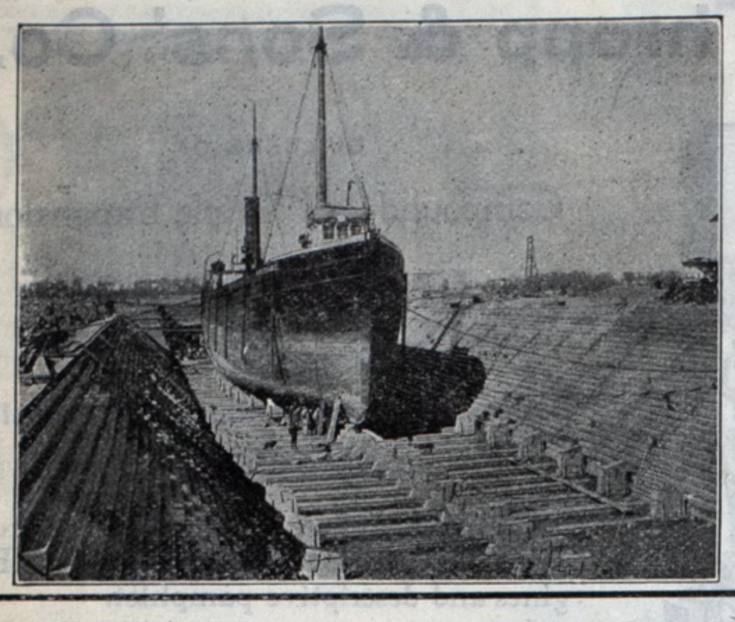

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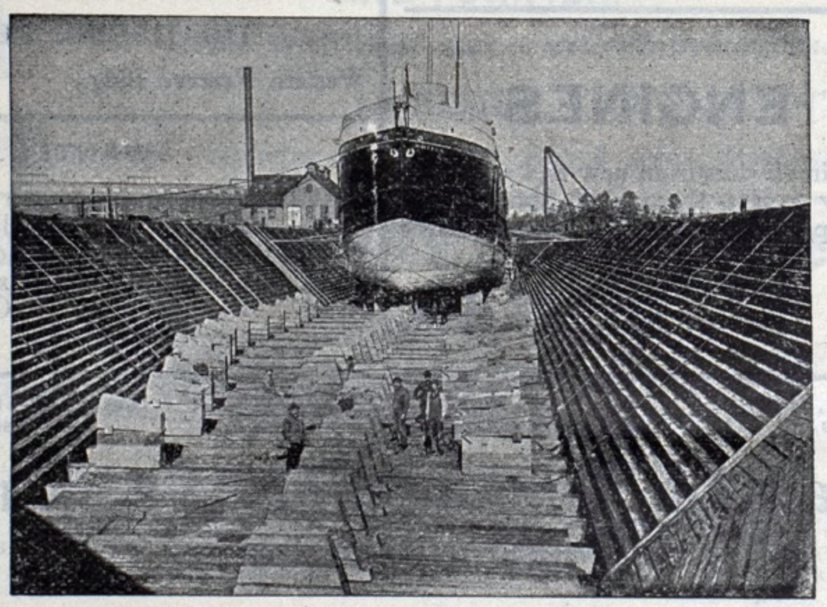

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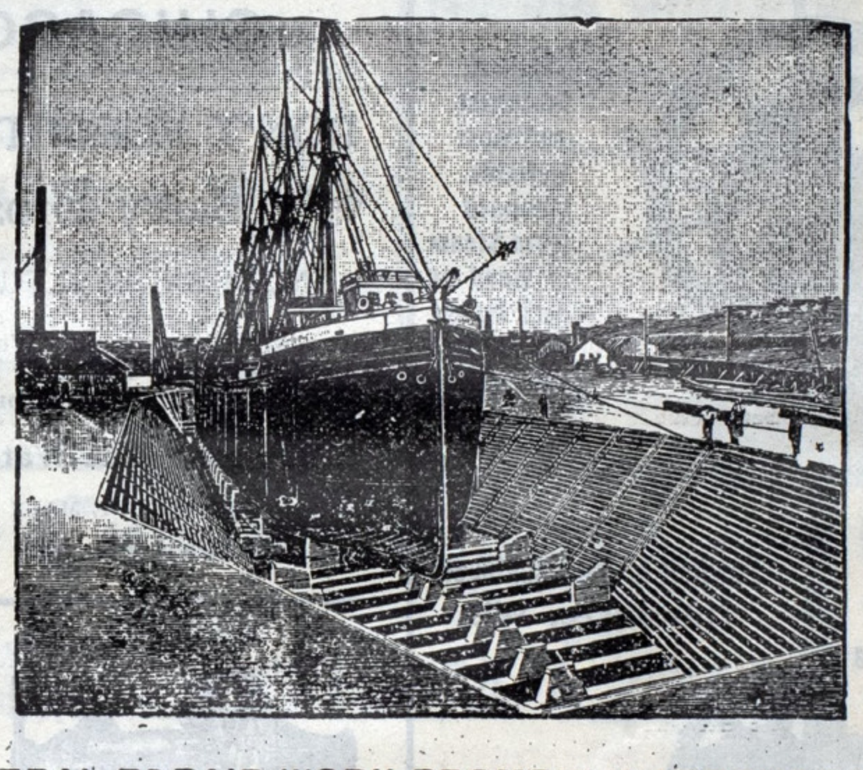

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